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**Notes:**

1. Untranslatable words are replaced with asterisks (\*\*\*).
2. Texts in the figures are not translated and shown as it is.

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## FULL CONTENTS

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**[Claim(s)]**

[Claim 1]A coconut (Cocos nucifera L.), hawk SAGOGIKU (Blumea balsamifera(L.) DC.), Anisisteilati fructus (Illicium verum Hook. f.), Juni Perse BURAJIRI ene cis- (Juniperus brasiliensis), SARIKKUSU Alba (Salix alba), guarana (Paullinia cupana), SUMIRAKKUSU OFISHINARISU (Smilax officinalis), SUMIRAKKUSU Aristolochia EFORIA (Smilax aristolochiaefolia), And a matrix-metallo-protease (MMPs) activity inhibition agent containing one sort or two sorts or more of vegetation chosen from Sumi Lux ASUPERA (Smilax aspera L.), or its solvent extraction thing.

[Claim 2]The MMPs activity inhibition agent according to claim 1 which is one sort chosen from enzymes in which matrix metallo protease (MMPs) belongs to a gelatinase group, a SUTOROMU lysin group, and a collagenase group, or two sorts or more.

[Claim 3]The MMPs activity inhibition agent according to claim 1 or 2 which is an elastin decomposition inhibitor.

[Claim 4]The MMPs activity inhibition agent according to claim 1 or 2 which is a laminin decomposition inhibitor.

[Claim 5]The MMPs activity inhibition agent according to claim 1 or 2 which is a basement membrane decomposition inhibitor.

[Claim 6]The MMPs activity inhibition agent according to claim 1 or 2 which is a proteoglycan degradation inhibitor.

[Claim 7]The MMPs activity inhibition agent according to claim 1 or 2 which is a collagen degradation inhibitor.

[Claim 8]A cosmetic for anti-aging which blends a matrix-metallo-protease (MMPs) activity inhibition agent of a description with any 1 paragraph of Claims 1-7.

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**[Detailed Description of the Invention]**

**[0001]**

[Field of the Invention]This invention relates to the matrix-metallo-protease activity inhibition agent and the cosmetic for anti-aging containing specific vegetation or its solvent extraction thing. It has the antagonism which was excellent in aging of the skin in more detail to the activity of the specific matrix metallo protease (MMPs:Matrixmetalloproteinases) which has big influence, It is related with the MMPs

activity inhibition agent which can prevent, prevent and improve aging of the skin effectively, and the cosmetic for anti-aging. This invention can be used conveniently for makeup cosmetics, hair care products, a bath liquid, etc. including basic cosmetics.

[0002]

[Description of the Prior Art]The human skin was divided roughly into three layers, epidermis, dermis, and a tela subcutanea, and epidermis and dermis have touched via basement membrane.

[0003]In basement membrane, a basal cell does not bear, but division is repeated, this segmented basal cell is pushed up one by one, and the corneum in the top layer of epidermis is formed. Since the character of the skin on cosmetics has very deep relation, the influence of a corneum of the skin on basement membrane is also great. Basement membrane is made into a kind of an extra-cellular matrix (after-mentioned), and contains type IV collagen, proteoglycan, laminin, fibronectin, etc.

[0004]Dermis consists of connective tissue and extracellular space is mainly filled by the network structure of the macromolecule called an extra-cellular matrix (ECM:extracellular matrix). An extra-cellular matrix (ECM) consists of fibrous protein (collagen, elastin, etc.) and cellular adhesiveness protein, and (glycosaminoglycan, proteoglycan, fibronectin, laminin, etc.) with such a structure, Dermis has influenced the elasticity of the skin, tension, etc. greatly.

[0005]It is known that the fall etc. of the female sex hormone seen at ultraviolet radiation or climacterium are participating in elimination of the change accompanying aging of the skin, i.e., a crease, dullness, and a texture, the fall of elasticity, etc. greatly conventionally. If these change is seen microscopic, reduction and the denaturation of extracellular matrix components (ECM), such as collagen in dermis and elastin, and also a basement membrane injury, and the acanthosis have happened.

[0006]Research progresses in recent years and especially the intervention of matrix metallo protease (MMPs) is pointed out as a factor which derives these change. a group to which MMPs uses extracellular matrix protein as main substrates -- it is the generic name of protease. Although many kinds are known by MMPs and it has a common appearance with the structural and functional feature, each substrate protein differs (68 No. 12, "biochemistry", pp.1791-1807 (1996) besides MIYAZAKI, Kaoru).

[0007]MMPs is usually classified into a gelatinase group, a SUTOROMU lysin group, a collagenase group, and others (Mathot Rira Isin etc.) from the structure and the field of a mechanism.

[0008]MMP-2 and MMP-9 grade are contained in a gelatinase group. These MMP(s)-2 and 9 are known as an enzyme which disassembles type IV collagen which is basement membrane components, elastin of laminin and a dermis matrix component, etc.

[0009]MMP-3 and MMP-10 grade are contained in a SUTOROMU lysin group. These MMP(s)-3 and 10 are known as an enzyme which decomposes the proteoglycan which is basement membrane components, type IV collagen, laminin, other fibronectins, etc.

[0010]MMP-1 (stromata collagenase), MMP-8, and MMP-13 grade are contained in a collagenase group. MMP-1 is especially known as an enzyme which disassembles Type I which are the main constituents of a dermis matrix, III collagen, the proteoglycan which is basement membrane components, etc.MMP-8 and MMP-13 have disintegration, such as type I collagen.

[0011]The manifestation increases these each enzyme greatly by the exposure of ultraviolet radiation, It is set to one of the causes of reduction denaturation of the extra-cellular matrix (ECM) by ultraviolet radiation, . It is thought that it is one of the major factors, such as formation of the crease of the skin. (V. Koivukangas et al., "Acta Derm Venereol"(Stockh), 74, 279-282(1994); Gary J. Fisher et al., "Nature", 379 (25),335(1996) ; Gary J. Fisher et al., "The New England Journal of Medicine", 337 (20), 1419 (1997).

Besides the exposure of ultraviolet radiation, rapid reduction and lack of the female sex hormone at the time of climacterium serve as a trigger, The increase in MMP-2 in the skin and MMP-9 arises, and, [ like the case where it is UV irradiation ] It became clear that they are development factors, such as a crease of the skin and sag (2001 to application-for-patent 50839 Description, N. Ochiai et al., "Jpn. J. Dermatol.", 111 (3), 532 (Abs.) (2001)). Thus, when inhibition of MMPs activity protects various extra-cellular matrices and prevents aging of the skin, it is very important.

[0012]

[Problem to be solved by the invention]However, although fibrocyte is activated to the conventional anti-aging drugs and many things with the mechanism to which the production amount of collagen is made to increase are accepted to them, What paid its attention to the activity inhibition of each MMPs to an extra-cellular matrix (ECM) is restricted (a JP,2001-139466,A gazette, a JP,2001-172157,A gazette, a JP,2001-192316,A gazette, a JP,2001-192317,A gazette).

[0013]Therefore, an object of this invention is to provide providing the pharmaceutical preparation which can check the activity of MMPs which is closely related to aging of the skin, the MMPs activity inhibition agent which can check each enzyme activity in MMPs certainly especially, and the cosmetic for anti-aging.

[0014]

[Means for solving problem]In order to solve above-mentioned SUBJECT, as a result of considering the anti-aging operation based on each MMPs activity inhibition about large various substances, this invention persons find out that there is a MMPs activity inhibition operation outstanding in specific vegetation or its extract, and came to complete this invention. This invention has the activity inhibition effect of MMPs which has big influence on aging of the skin, further, also in MMPs, it checks certainly each MMPs which has an especially close relation with skin aging, prevents and prevents skin aging, such as a crease and sag, effectively, and can improve it.

[0015]This invention Namely, a coconut (*Cocos nucifera* L.), Hawk SAGOGIKU (*Blumea balsamifera* (L.) DC.), SARIKKEILATI fructus (*Illicium verum* Hook. f.), JUNI PERSE BURAJIRI ene cis- (*Juniperus brasiliensis*), SARIKKUSU Alba (*Salix alba*), guarana (*Paullinia cupana*), SUMIRAKKUSU OFISHINARISU (*Smilax officinalis*), SUMIRAKKUSU Aristolochia EFORIA (*Smilax aristolochiaefolia*), And it is related with the matrix-metallo-protease (MMPs) activity inhibition agent containing one sort or two sorts or more of vegetation chosen from Sumi Lux ASUPERA (*Smilax aspera* L.), or its solvent extraction thing.

[0016]This invention relates to the above-mentioned MMPs activity inhibition agent which is one sort chosen from the enzymes in which matrix metallo protease (MMPs) belongs to a gelatinase group, a SUTOROMU lysin group, and a collagenase group, or two sorts or more.

[0017]This invention relates to the above-mentioned MMPs activity inhibition agent which is collagen degradation an elastin decomposition inhibitor, a laminin decomposition inhibitor, a basement membrane decomposition inhibitor, a proteoglycan degradation inhibitor, or an inhibitor.

[0018]This invention relates to the cosmetic for anti-aging which blends the MMPs activity inhibition agent of one of the above.

[0019]

[Mode for carrying out the invention]Hereafter, this invention is explained in full detail.

[0020]The coconut (*Cocos nucifera* L.) used for this invention is a vegetable kind belonging to the Palmae (Palmae) coconut group (*Cocos*), and is also called coconut palm. By the evergreen tree which

grows in the sands, a coral reef, etc. of the seashore of the tropics, the albumen liquid of a half-mature fruit is made drink of juice etc., and a fat is made edible.

[0021]Hawk SAGOGIKU (*Blumea balsamifera*(L.) DC.) is a vegetable kind belonging to the Asteraceae (Compositae) vine HAGUMA group (*Blumea*). A volatile oil (a component is l-borneol) is extracted from a leaf. A leaf and a chit are used for extermination of harmful insects, arthritis, a bruise, diarrhea abdominal pain, rheumatism, etc.

[0022]Anisisteilati fructus (*Illicium verum* Hook. f.) is a vegetable kind belonging to the department (Illiciaceae) SHIKIMI group (*Illicium*) of SHIKIMI, and also calls it rattan SHIKIMI and anisisteilati fructus. Branches and leaves and fruits are distilled and volatile star anise oil (a principal component is anethole) is taken. Fruits are used also as \*\*\*\* and a stimulant.

[0023]Juni Perse BURAJIRI ene cis- (*Juniperus brasiliensis*) is a vegetable kind belonging to the Cupressaceae (Cupressaeae) NEZUMISASHI group (or *Juniperus*) (*Juniperus*).

[0024]SARIKKUSU Alba (*Salix alba*) is a vegetable kind belonging to the Salicaceae (Salicaceae) willow group (*Salix*), and is widely distributed over Asia and North Africa from Europe. A bark is made into medical use and let it be convergence bitters.

[0025]Guarana (*Paullinia cupana*) is a vegetable kind belonging to the Sapindaceae (Sapinadaceae) guarana group (*Paullinia*). A seed (guarana child) is broken, it scours with water with tapioca starch, what was made cylindrical is made into smoked fish, this is deleted, it is made powdered, and \*\*\*\*\* drink of the boiling water is carried out. It becomes the cordial.

[0026]SUMIRAKKUSU OFISHINARISU (*Smilax officinalis*), [ SUMIRAKKUSU *Aristolochia* EFORIA (*Smilax aristolochiaefolia*) and Sumi Lux ASUPERA (*Smilax aspera* L.) ] All are the vegetable kinds belonging to the Liliaceae (Liliaceae) *Smilax* (*Smilax*).

[0027]Although various pharmacological activity is known, also in which vegetation, having a MMPs activity inhibition operation is not known until now, but this invention persons find out this time each above-mentioned vegetation used for this invention for the first time.

[0028]Although the thing dry in the raw state can also be used for each vegetation used for this invention, it is preferred to use as dry powder or a solvent extraction thing from points, such as usability and pharmaceutical-preparation-izing.

[0029]Although the arbitrary parts of each plant bodies, such as a leaf, a branch, a flower, a root, fruits, pericarp, a seed, and a bark, can be used as a use part of the above-mentioned vegetation, the following part is used especially preferably, respectively.

[0030]Other parts can also be used although it is preferred especially to use a root in a coconut (*C. nucifera*).

[0031]Other parts can also be used although it is preferred in hawk SAGOGIKU (*B. balsamifera*) especially to use a leaf.

[0032]Other parts can also be used although it is preferred in anisisteilati fructus (*I. verum*) especially to use fruits.

[0033]Other parts can also be used although it is preferred especially to use a bark Juni Perse BURAJIRI ene cis- (*J. brasiliensis*).

[0034]Other parts can also be used although it is preferred especially to use a bark in SARIKKUSU Alba (*S. alba*).

[0035]Other parts can also be used although it is preferred especially to use a seed by guarana (*P. cupana*).

[0036]SUMIRAKKUSU OFISHINARISU (*S. officinalis*), Other parts can also be used although it is all preferred in SUMIRAKKUSU *Aristolochia EFORIA* (*S. aristolochiaefolia*) and Sumi Lux ASUPERA (*S. aspera* L.) especially to use a root.

[0037]After it can obtain the extract of each above-mentioned vegetation with a conventional method, for example, it immerses or flows back [ heating ] each above-mentioned vegetation with an extracting solvent, it can be filtered, condensed and obtained. If it is a solvent usually used for extraction as an extracting solvent, it can use arbitrarily, For example, water, methanol, ethanol, propylene glycol, 1,3-butanediol, organic solvents, such as alcohols, such as glycerol, hydrous alcohols, chloroform, dichloroethane, carbon tetrachloride, acetone, ethyl acetate, and hexane, etc. -- it can be independent respectively, or it can combine and can use. Remaining as it is or the condensed extractives for the extract extracted and obtained with the above-mentioned solvent An adsorption process, For example, what removed the impurity using the ion exchange resin, and the thing which was eluted by methanol or ethanol and was condensed after making it adsorb in the column of porous polymer (for example, Amberlite XAD-2) can also be used. The extract etc. which were extracted by the distributing method, for example, water/ethyl acetate, are used.

[0038]Each above-mentioned vegetation or its extract has high safety, and it has antagonism and an activity inhibition operation outstanding also to which MMPs belonging to a gelatinase group, a SUTOROMU lysin group, a collagenase group, etc. among MMPs.

[0039]As an activity inhibition agent of MMPs belonging to a gelatinase group, the application as an elastin decomposition inhibitor, a laminin decomposition inhibitor, and a basement membrane decomposition inhibitor is mentioned in illustration.

[0040]As an activity inhibition agent of MMPs belonging to a SUTOROMU lysin group, the application as a proteoglycan degradation inhibitor and a laminin decomposition inhibitor is mentioned in illustration.

[0041]As an activity inhibition agent of MMPs belonging to a collagenase group, the application as a collagen degradation inhibitor is mentioned in illustration.

[0042]These are applicable also as an anti-crease agent aiming at prevention and prevention, and an improvement of a crease.

[0043]The "MMPs activity inhibition agent" as used in this invention means widely the pharmaceutical preparation which has antagonism to matrix-metallo-protease (MMPs) activity.

[0044][ the matrix-metallo-protease inhibitor of this invention ] It makes it suitable to use as a cosmetic for anti-aging, and the loadings of each above-mentioned vegetation or its extract have preferred 0.0001 - 20 mass % as dry mass (solid content mass) among the cosmetic whole quantity in that case, and it is 0.0001 to 10 mass % especially. Even if the invention-in-this-application effect is fully hard to be demonstrated and blends on the other hand exceeding 20 mass %, since it does not accept and pharmaceutical preparation-ization becomes difficult, the improvement in so big an effect is not preferred at less than 0.0001 mass %. "The cosmetic for anti-aging" as used in the field of this invention means widely the cosmetic for preventing aging of the skins, such as aging especially a crease, and sag, preventing, and improving.

[0045]When using the MMPs activity inhibition agent of this invention for the cosmetic for anti-aging, for example, [ within limits which do not spoil the effect of this invention other than the above-mentioned essential ingredient ] Usually, the component used for external preparations, such as cosmetics and drugs, for example, a whitening agent, a moisturizer, an antioxidant, an oily component,

an ultraviolet ray absorbent, a surface active agent, a thickener, alcohols, a powder constituent, coloring material, an aqueous ingredient, water, various skin nutrients, etc. can be blended suitably if needed.

[0046]The disodium edetate, edetate trisodium, sodium citrate, Sequestering agents, such as sodium polyphosphate, sodium metaphosphate, and gluconic acid, Caffeine, tannin, verapamil, tranexamic acid, and its derivative, A glycyrrhiza extract, glove lysine, the hot water extract of the fruits of a Chinese quince, various crude drugs, Drugs, such as tocopherol acetate, glycyrrhizic acid and its derivative, or its salt, Vitamin C, ascorbic acid magnesium phosphate, glucoside ascorbate, Vitamin A derivatives, such as saccharides, such as other whitening agents, such as arbutin and kojic acid, glucose, fructose, mannose, cane sugar, and trehalose, retinoic acid, retinol, retinol acetate, and retinol palmitate, can be blended suitably.

[0047]The pharmaceutical form is not limited and, especially as for this invention, arbitrary pharmaceutical forms, such as a solution system, a solubilization system, an emulsification system, a powder dispersed system, a water-oil bilayer system, water-oil-powder 3 layer system, ointment, a gel, and aerosol, are applied.

[0048]The type of usage is also arbitrary, for example, although it can use for facial cosmetics, such as face toilet, a milky lotion, cream, and a pack, a makeup cosmetic besides foundation, the cosmetic for hair, an aroma cosmetic, baths, etc., of course, it is not what is limited to these illustration.

[0049]

[Working example]Next, although an embodiment explains this invention still in detail, technical scope of this invention is not limited at all by these embodiments.

[0050]In advance of an embodiment, a test method and a valuation method are explained about MMP-9 of each plant extract used for this invention, MMP-3, and the MMP-1 activity-inhibition effect.

[0051][A test method and a valuation method]

1. Preparation of sample [0052](1) As shown in the plant extract table 1, each vegetation was immersed in methanol for one week at the room temperature, respectively, and the extract was obtained. This extract was condensed and each plant extract (methanolic extract) was obtained.

[0053]

[Table 1]

植 物 名	部 位	植物使用 量 (g)	溶媒 (メノ ル) 量 (mL)	植物抽出物 収量 (g)
ヤシ ( <i>Cocos nucifera</i> )	根	200	800	13.91
タカサゴギク ( <i>Blumea balsamifera</i> )	葉	200	950	4.31
ダイウイキョウ ( <i>Illicium verum</i> )	果実	200	500	12.93
ジュニベルス・ブラジリエンス ( <i>Juniperus brasiliensis</i> )	樹皮	10	80	1.20
サリックス・アルバ ( <i>Salix alba</i> )	樹皮	10	80	1.21
ガラナ ( <i>Paullinia cupana</i> )	種子	10	80	1.39
スミラックス・オフィシナリス ( <i>Smilax officinalis</i> )	根	10	62	0.60
スミラックス・アリストロキアエフォ リア ( <i>Smilax aristolochiaefolia</i> )	根	10	80	1.23
スミラックス・アスペラ ( <i>Smilax aspera</i> )	根	10	50	0.70

[0054](2) The sample solution above-mentioned plant extract was dissolved in dimethyl sulfoxide (DMSO) so that it might become concentration 2 mass %, and it was considered as the plant extract content solution.

[0055]As this plant extract content solution was diluted with the buffer solution for measurement (0.1M tris of pH 7.4 containing 0.4M NaCl and 10mM CaCl<sub>2</sub>) and was shown in Tables 2-4, respectively, concentration was adjusted, and the following experiments were conducted, using this as a sample solution.

[0056]2. The rate of activity inhibition was measured, using MMP-9 as an enzyme belonging to the rate gelatinase group of MMPs activity inhibition effect examination (1) MMP-9 activity inhibition. Measurement was performed as follows.

[0057]That is, the SDS-polyacrylamide gel (10%T) containing 0.2 mass % gelatin was produced, a fixed quantity of MMP-9 solutions of human cell origin were applied to all the lanes, and electrophoresis was performed. The gel after migration was washed by 2.5 mass % "TritonX-100", and SDS was fully further removed with the buffer solution for incubations (50mM tris of pH 8.0 containing 0.01mM ZnSO<sub>4</sub> and 5mM CaCl<sub>2</sub>). The gel was cut in the shape of a strip of paper, each amputation gel was

dipped in the buffer solution for incubations which carried out prescribed concentration addition of the sample, and it incubated at 37 °C overnight.

[0058]KUMASSHI brilliant blue dyeing of the gel was carried out after the incubation, and the size of the band which appears after decolorization was turned in fixed quantity with the image analyzer ("Fluor-S Multi Imager" by Biorad).

[0059]And the system of reaction which does not contain a plant extract (control.) The reduction value of the band in the system (the above-mentioned sample solution) to the value of the band in DMSO containing a plant extract was calculated, and the rate of MMP-9 activity inhibition (%) was computed. A result is shown in Table 2. The same examination as the above was done also with the

ethylenediaminetetraacetic acid (EDTA) which is the substance in which the MMPs activity inhibition operation is known well as a reference example. A result is collectively shown in Table 2.

[0060](2) The stromelysin 1 made from YAGAI and the measurement kit of I type collagenase were used for MMP-1 and rate measurement of 3 activity inhibition. Each enzyme of human cell origin was used as MMP. That is, MMP-1 was used, respectively as an enzyme which belongs MMP-3 to a collagenase group as an enzyme belonging to a SUTOROMU lysin group (all are the products made from YAGAI).

[0061]The above-mentioned sample solution 50mul and enzyme solution 100mul containing a fixed quantity of enzymes (0.4 unit/(ml)), Set 50micro of fluorescent label substrate solutions (1mg/(ml)) 1, and And fixed time (2 to 4 hours), After incubating at 42 \*\*, the ethanol solution was added, the unreacted substrate was settled according to centrifugal separation after the enzyme reaction stop, the fluorescence intensity of the disassembled substrate which remained in supernatant liquid was measured, and the decomposition rate of the substrate was searched for.

[0062]And the system of reaction which does not contain a plant extract (control.) the decomposition rate in the system (the above-mentioned sample solution) to the substrate decomposition rate in DMSO containing a plant extract -- it asked for each rate of enzyme activity inhibition of the plant extract comparatively more. A result is shown in Tables 3 and 4.

[0063]The same examination as the above was done also with the ethylenediaminetetraacetic acid (EDTA) which is the substance in which the MMPs activity inhibition operation is known well as a reference example. A result is collectively shown in Tables 3 and 4.

[0064]

[Table 2]

試 料	試料溶液濃度 (質量%)	酵素	MMPs 活性阻 害率 (%)
ヤシ ( <i>Cocos nucifera</i> )	0.0005	MMP-9	84
ヤシ ( <i>Cocos nucifera</i> )	0.005	MMP-9	95
タカサゴギク ( <i>Blumea balsamifera</i> )	0.0005	MMP-9	28
タカサゴギク ( <i>Blumea balsamifera</i> )	0.005	MMP-9	65
ダイウイキョウ ( <i>Illicium verum</i> )	0.0005	MMP-9	31
ダイウイキョウ ( <i>Illicium verum</i> )	0.005	MMP-9	75
ジュニベルス・ブラジリエンシス ( <i>Juniperus brasiliensis</i> )	0.0005	MMP-9	50
サリックス・アルバ ( <i>Salix alba</i> )	0.0005	MMP-9	49
ガラナ ( <i>Paullinia cupana</i> )	0.0005	MMP-9	50
スミラックス・オフィシナリス ( <i>Smilax officinalis</i> )	0.0005	MMP-9	48
スミラックス・アリストロキアエフォ リア ( <i>Smilax aristolochiaefolia</i> )	0.0005	MMP-9	30
スミラックス・アスペラ ( <i>Smilax aspera</i> )	0.0005	MMP-9	31
EDTA	0.005	MMP-9	0
EDTA	0.05	MMP-9	85

[0065]

[Table 3]

試 料	試料溶液濃度 (質量%)	酵素	MMPs 活性阻 害率 (%)
ヤシ ( <i>Cocos nucifera</i> )	0.001	MMP-3	49
タカサゴギク ( <i>Blumea balsamifera</i> )	0.001	MMP-3	35
ダイウイキョウ ( <i>Illicium verum</i> )	0.001	MMP-3	21
ジュニベルス・ブラジリエンス ( <i>Juniperus brasiliensis</i> )	0.0005	MMP-3	49
サリックス・アルバ ( <i>Salix alba</i> )	0.0005	MMP-3	35
ガラナ ( <i>Paullinia cupana</i> )	0.0005	MMP-3	21
スミラックス・オフィシナリス ( <i>Smilax officinalis</i> )	0.0005	MMP-3	28
スミラックス・アリストロキアエフォ リア ( <i>Smilax aristolochiaefolia</i> )	0.0005	MMP-3	39
スミラックス・アスペラ ( <i>Smilax aspera</i> )	0.0005	MMP-3	40
EDTA	0.005	MMP-3	0
EDTA	0.05	MMP-3	80

[0066]

[Table 4]

試 料	試料溶液濃度 (質量%)	酵素	MMPs 活性阻 害率 (%)
ヤシ ( <i>Cocos nucifera</i> )	0.001	MMP-1	51
タカサゴギク ( <i>Blumea balsamifera</i> )	0.001	MMP-1	40
ダイウイキョウ ( <i>Illicium verum</i> )	0.001	MMP-1	20
ジュニベルス・ブラジリエンス ( <i>Juniperus brasiliensis</i> )	0.001	MMP-1	51
サリックス・アルバ ( <i>Salix alba</i> )	0.001	MMP-1	40
ガラナ ( <i>Paullinia cupana</i> )	0.001	MMP-1	20
スミラックス・オフィシナリス ( <i>Smilax officinalis</i> )	0.001	MMP-1	49
スミラックス・アリストロキアエフォ リア ( <i>Smilax aristolochiaefolia</i> )	0.001	MMP-1	50
スミラックス・アスペラ ( <i>Smilax aspera</i> )	0.001	MMP-1	48
EDTA	0.005	MMP-1	0
EDTA	0.05	MMP-1	91

[0067]MMP-9 of each plant extract used for this invention, MMP-3, and the MMP-1 activity-inhibition effect were extremely excellent compared with MMP-9 of EDTA, MMP-3, and the MMP-1 activity-inhibition effect so that clearly from Tables 2-4. Therefore, aging of the skins, such as a crease and sag, can be effectively prevented, prevented and improved using these vegetation or its extract.

[0068]The example of a formula of this invention is further given to below as an embodiment.

[0069]

(Embodiment 1) Cream (a part for \* \* \* \* ) (mass %)

(1) Stearic acid 5.0 (2) stearyl-alcohol . 4.0 (3) isopropyl-myristate 18.0 (6) coconut extract 0.01 (50% 1,3-butanediol extract.) (4) glycerol monostearin acid ester 3.0 (5) propylene-glycol 10.0 1.01% of concentration

(7) Caustic potash 0.2 (8) sodium-hydrogensulfite 0.01 (9) antiseptics \* \* Quantity (10) perfume \* \* Quantity (11) ion exchange water \* \* (5) - (7) is added to \* \* (process) (11), and it dissolves, and it heats and keeps at 70 \* \* (aqueous phase). On the other hand, (1) - (4) and (8) - (10) is mixed, heating fusion is carried out, and it keeps at 70 \* \* (oil phase). Since an oil phase is gradually added to the aqueous phase and it all finishes adding it to it, it maintains at the temperature for a while, and a reaction is made to cause. Then, it cools to 30 \* \*, emulsifying uniformly and stirring well by homomixer.

[0070]

(Embodiment 2) Cream (a part for \* \* \* \* ) (mass %)

(1) Stearic acid 2.0 (2) stearyl-alcohol 7.0 (3) hydrogenated-lanolin 2.0 (4) squalane 5.0 (5)2-octyldodecyl alcohol 6.0 (6) polyoxyethylene (25 mol)

Cetyl alcohol ether 3.0 (9) hawk SAGOGIKU extract (7) glycerol monostearin acid ester 2.0 (ethanol extract.) (8) propylene-glycol 5.0 Concentration 1.50% 0.05 (10) sodium hydrogensulfite 0.03 (11) ethylparaben 0.3 (12) perfume \* \* Quantity (13) ion exchange water \* \* (8) is added to \* \* (process) (13), and it heats, and keeps at 70 \* \* (aqueous phase). On the other hand, (1) - (7) and (9) - (12) is mixed, heating fusion is carried out, and it keeps at 70 \* \* (oil phase). After adding an oil phase to the aqueous phase, performing preliminary emulsification and emulsifying uniformly by homomixer, it cools to 30 \* \*, stirring well.

[0071]

(Embodiment 3) Cream (a part for \* \* \* \* ) (mass %)

(1) Solid paraffin 5.0 (2) yellow-bees-wax 10.0 (3) vaseline 15.0 (4) liquid-paraffin 41.0 (5) glycerol monostearin acid ester 2.0 (6) polyoxyethylene (20 mol)

Sorbitan mono- lauryl acid ester 2.0 (9) anisisteilati-fructus extract (7) soap powder 0.1 (acetone extraction.) (8) borax 0.2 Solid content 0.05 (10) coconut extract (ethanol extraction.) Solid content 0.05 (11) sodium-hydrogensulfite 0.03 (12) ethylparaben 0.3 (13) perfume \* \* Quantity (14) ion exchange water \* \* (7) and (8) are added to \* \* (process) (14), and it heats, and keeps at 70 \* \* (aqueous phase). On the other hand, (1) - (6) and (9) - (14) is mixed, heating fusion is carried out, and it keeps at 70 \* \* (oil phase). In addition, it reacts gradually, stirring an oil phase to the aqueous phase. It cools to 30 \* \* after the end of a reaction, emulsifying uniformly and stirring with the sufficient emulsification back by homomixer.

[0072]

(Embodiment 4) (mass %) Milky lotion (a part for \* \* \* \* )

(1) Stearic acid 2.5 (2) cetyl-alcohol 1.5 (3) vaseline 5.0 (4) liquid-paraffin 10.0 (5) polyoxyethylene (10

mol)

Monooleate 2.0 (6) polyethylene glycol 1500 3.0 (7) triethanolamine 1.0 (8) carboxyvinyl-polymer 0.05 ("Carbopol 941" B.F.Goodrich)

(9) Hawk SAGOGIKU extract (ethyl acetate extraction.) Solid content 0.01 (10) sodium-hydrogensulfite 0.01 (11) ethylparaben 0.3 (12) perfume \*\* Quantity (13) ion exchange water \*\* (8) is dissolved in (13) of a \*\* (process) small quantity (A phase). On the other hand, the heating and dissolving of (6) and (7) are added and carried out to the (13), and it keeps at 70 \*\* (aqueous phase). [ remaining ] (1) - (5) and (9) - (12) are mixed, heating fusion is carried out, and it keeps at 70 \*\* (oil phase). An oil phase is added to the aqueous phase, preliminary emulsification is performed and A phase is added, and it cools to 30 \*\*, emulsifying uniformly and stirring with the sufficient emulsification back by homomixer.

[0073]

(Embodiment 5) (mass %) Milky lotion (a part for \*\* \* \* \* )

(1) Microcrystallin wax 1.0 (2) yellow-bees-wax 2.0 (3) lanolin 20.0 (4) liquid-paraffin 10.0 (5) squalane 5.0 (6) sorbitan sesquioleate 4.0 (7) polyoxyethylene (20 mol)

Sorbitan-monooleate-ether 1.0 (9) anisistilati-fructus extract (8) propylene-glycol 7.0 (acetone extraction.) Solid content 10.0 (10) sodium-hydrogensulfite 0.01 (11) ethylparaben 0.3 (12) perfume \*\* Quantity (13) ion exchange water (8) is added to the emainder (process) (13), and it heats, and keeps at 70 \*\* (aqueous phase). On the other hand, (1) - (7) and (9) - (12) is mixed, heating fusion is carried out, and it keeps at 70 \*\* (oil phase). The aqueous phase is gradually added to this, stirring an oil phase, and it emulsifies uniformly by homomixer. It cools to 30 \*\* after emulsification, stirring well.

[0074]

(Embodiment 6) (mass %) Jelly (a part for \*\* \* \* \* )

(1) 95% ethyl alcohol 10.0 (2) dipropylene-glycol 15.0 (3) polyoxyethylene (50 mol) Oleyl alcohol ether 2.0 (4) carboxyvinyl-polymer 1.0 ("Carbopol 940" B.F.Goodrich) (5) Caustic-alkali-of-sodium 0.15(6) L-arginine 0.1 (7) coconut extract (50% ethanol extract.)

Concentration 1.05%7.0 (8)2-hydroxy-4-methoxybenzophenone Sulfone sodium 0.05(9) ethylenediamine tetra acetate, 3Na, and 2 water 0.05 (10) methylparaben 0.2 (11) perfume . \*\* Quantity (12) ion exchange water \*\* (4) is uniformly dissolved in \*\* (process) (12) (aqueous phase). On the other hand, (7) and (3) are dissolved in (1) and this is added to the aqueous phase. Subsequently, after adding (2) and (8) - (11) here, it is made to neutralize by (5) and (6), and thickens.

[0075]

(Embodiment 7) (mass %) Essence (a part for \*\* \* \* \* )

(A phase)

ethyl alcohol (95%) -- a 10.0 polyoxyethylene (20 mol) octyldodecanol 1.0 pantothenyl-ethyl-ether 0.1 hawk SAGOGIKU extract (methanol extraction.) Solid content 1.5 methylparaben 0.15 (B phase)

Potassium hydroxide 0.1 (C phase)

Glycerol 5.0 Dipropylene glycol 10.0 sodium-hydrogensulfite 0.03 carboxyvinyl polymer 0.2 ("Carbopol 940" B.F.Goodrich)

Purified water A residual (process) A phase and C phase are dissolved in homogeneity, respectively, and A phase is added and solubilized to C phase. Subsequently, a container is filled up after adding B phase.

[0076]

(Embodiment 8) (mass %) Pack (a part for \*\* \* \* \* )

(A phase)

Diisopropylene glycol 5.0 Polyoxyethylene (60 mol) hydrogenated-castor-oil 5.0 (B phase)  
 Anisistilactone extract (methanol extraction.) Solid content 0.01 olive-oil 5.0 tocopherol acetate 0.2  
 ethylparaben 0.2 perfume 0.2 (C phase)  
 sodium hydrogensulfite [ ] -- 0.03 polyvinyl alcohol (the degree 90 of saponification, the degree of  
 polymerization 2,000) -- 13.0 ethanol 7.0 purified water \*\* A \*\* (process) A phase, B phase, and C  
 phase are dissolved in homogeneity, respectively, and B phase is added and solubilized to A phase.  
 Subsequently, a container is filled up after adding this to C phase.

[0077]

(Embodiment 9) (mass %) Cake makeup (a part for combination \*\* )

(1) Talc 43.1 (2) kaolin . 15.0 (3) sericite 10.0 (4) zinc-white . 7.0 (5) titanium-dioxide 3.8 (6) Synthetic  
 Ochre . 2.9 (7) black-iron-oxide 0.2 (8) squalane 8.0 (9) isostearic acid 4.0 (10) monooleic acid POE  
 sorbitan 3.0 (11) octanoic-acid isocetyl 2.0 (12) coconut extract (ethanol extract.) Concentration 0.83%  
 1.0 (13) antiseptics \*\* Quantity (14) perfume \*\* Quantity (process) (1) The powder constituent of - (7)  
 is enough mixed with a blender, and it fills up and molds into a container, after being easy to add the  
 oily component of (8) - (11), (12), (13), and (14) to this and kneading them to it.

[0078]

(Embodiment 10) Emulsified type foundation (cream type)

(A part for \*\* \*\* \*\* ) (mass %)

(Fine-particles part)

Titanium dioxide 10.3 sericite 5.4 kaolin 3.0 Synthetic Ochre 0.8 red-ocher 0.3 black-iron-oxide 0.2 (oil  
 phase)

Decamethyl cyclopentasiloxane 11.5 liquid paraffin 4.5 polyoxyethylene denaturation  
 dimethylpolysiloxane 4.0 (aqueous phase)

Purified water 51.0 1,3-butanediol 4.5 hawk SAGOGIKU extract (ethanol extract.) Concentration 1.01%  
 1.5 Sorbitan sesquioleate 3.0 antiseptics Optimum dose perfume After heating and stirring the optimum  
 dose (process) aqueous phase, the fine-particles part which fully carried out preferential grinding is  
 added, and homomixer treatment is carried out. After adding the oil phase which furthermore carried out  
 heating mixing and carrying out homomixer treatment, perfume is added agitating and it cools to a room  
 temperature.

[0079]

(Embodiment 11) Cream (a part for \*\* \*\* \*\* ) (mass %)

(1) Stearic acid 5.0 (2) stearyl-alcohol . 4.0 (3) isopropyl-myristate 18.0 (6) Juniperus brasiliensis extract  
 0.01 (50% 1,3-butanediol extract.) (4) glycerol monostearin acid ester 3.0 (5) propylene-glycol 10.0  
 1.50% of concentration  
 (7) Caustic potash 0.2 (8) sodium-hydrogensulfite 0.01 (9) antiseptics \*\* Quantity (10) perfume \*\*  
 Quantity (11) ion exchange water \*\* (5) - (7) is added to \*\* (process) (11), and it dissolves, and it heats  
 and keeps at 70 \*\* (aqueous phase). On the other hand, (1) - (4) and (8) - (10) is mixed, heating fusion is  
 carried out, and it keeps at 70 \*\* (oil phase). Since an oil phase is gradually added to the aqueous phase  
 and it all finishes adding it to it, it maintains at the temperature for a while, and a reaction is made to  
 cause. Then, it cools to 30 \*\*, emulsifying uniformly and stirring well by homomixer.

[0080]

(Embodiment 12) Cream (a part for \*\* \*\* \*\* ) (mass %)

(1) Stearic acid 2.0 (2) stearyl-alcohol 7.0 (3) hydrogenated-lanolin 2.0 (4) squalane 5.0 (5) 2-

octyldodecyl alcohol 6.0 (6) polyoxyethylene (25 mol)

Cetyl alcohol ether 3.0 (9) Salix alba extract (7) glycerol monostearin acid ester 2.0 (ethanol extract.) (8) propylene-glycol 5.0 Concentration 1.01% 0.05 (10) sodium hydrogensulfite 0.03 (11) ethylparaben 0.3 (12) perfume \*\* Quantity (13) ion exchange water \*\* (8) is added to \*\* (process) (13), and it heats, and keeps at 70 \*\* (aqueous phase). On the other hand, (1) - (7) and (9) - (12) is mixed, heating fusion is carried out, and it keeps at 70 \*\* (oil phase). After adding an oil phase to the aqueous phase, performing preliminary emulsification and emulsifying uniformly by homomixer, it cools to 30 \*\*, stirring well.

[0081]

(Embodiment 13) Cream (a part for \*\* \*\* \*) (mass %)

(1) Solid paraffin 5.0 (2) yellow-bees-wax 10.0 (3) vaseline 15.0 (4) liquid-paraffin 41.0 (5) glycerol monostearin acid ester 2.0 (6) polyoxyethylene (20 mol)

Sorbitan mono- lauryl acid ester 2.0 (9) guarana extract (7) soap powder 0.1 (water extraction liquid.) (8) borax 0.2 Concentration 1.60% 0.05 (10) Smilax officinalis extract 0.05 (ethanol extract.) 2.0% of concentration

(11) Sodium hydrogensulfite 0.03 (12) ethylparaben 0.3 (13) perfume Optimum dose (14) ion exchange water \*\* (7) and (8) are added to \*\* (process) (14), and it heats, and keeps at 70 \*\* (aqueous phase). On the other hand, (1) - (6) and (9) - (14) is mixed, heating fusion is carried out, and it keeps at 70 \*\* (oil phase). In addition, it reacts gradually, stirring an oil phase to the aqueous phase. It cools to 30 \*\* after the end of a reaction, emulsifying uniformly and stirring with the sufficient emulsification back by homomixer.

[0082]

(Embodiment 14) (mass %) Milky lotion (a part for \*\* \*\* \*)

(1) Stearic acid 2.5 (2) cetyl-alcohol 1.5 (3) vaseline 5.0 (4) liquid-paraffin 10.0 (5) polyoxyethylene (10 mol)

Monooleate 2.0 (6) polyethylene glycol 1500 3.0 (7) triethanolamine 1.0 (8) carboxyvinyl-polymer 0.05 ("Carbopol 941" B.F.Goodrich)

(9) Smilax aristolochiaefolia extract 0.01 (ethyl acetate extraction.) Solid content

(10) Sodium hydrogensulfite 0.01 (11) ethylparaben 0.3 (12) perfume Optimum dose (13) ion exchange water \*\* (8) is dissolved in (13) of a \*\* (process) small quantity (A phase). On the other hand, the heating and dissolving of (6) and (7) are added and carried out to the (13), and it keeps at 70 \*\* (aqueous phase). [ remaining ] (1) - (5) and (9) - (12) are mixed, heating fusion is carried out, and it keeps at 70 \*\* (oil phase). An oil phase is added to the aqueous phase, preliminary emulsification is performed and A phase is added, and it cools to 30 \*\*, emulsifying uniformly and stirring with the sufficient emulsification back by homomixer.

[0083]

(Embodiment 15) (mass %) Milky lotion (a part for \*\* \*\* \*)

(1) Microcrystallin wax 1.0 (2) yellow-bees-wax 2.0 (3) lanolin 20.0 (4) liquid-paraffin 10.0 (5) squalene 5.0 (6) sorbitan sesquioleate 4.0 (7) polyoxyethylene (20 mol)

Sorbitan-monooleate-ether 1.0 (9) Smilax aspera extract (8) propylene-glycol 7.0 (acetone extraction.)

Solid content 10.0 (10) sodium-hydrogensulfite 0.01 (11) ethylparaben 0.3 (12) perfume \*\* Quantity (13) ion exchange water (8) is added to the emainder (process) (13), and it heats, and keeps at 70 \*\* (aqueous phase). On the other hand, (1) - (7) and (9) - (12) is mixed, heating fusion is carried out, and it keeps at 70 \*\* (oil phase). The aqueous phase is gradually added to this, stirring an oil phase, and it

emulsifies uniformly by homomixer. It cools to 30 ° after emulsification, stirring well.

[0084]

(Embodiment 16) Jelly (a part for \* \* \* \*) (mass %)

(1) 95% ethyl alcohol 10.0 (2) dipropylene-glycol 15.0 (3) polyoxyethylene (50 mol) Oleyl alcohol ether 2.0 (4) carboxyvinyl-polymer 1.0 ("Carbopol 940" B.F.Goodrich) (5) Caustic-alkali-of-sodium 0.15(6) L-arginine 0.1 (7) guarana extract (50% ethanol extract.) Concentration 1.50%7.0 (8)2-hydroxy-4-methoxybenzophenone Sulfone sodium 0.05 (9) ethylenediamine tetra acetate, 3Na, and 2 water 0.05 (10) methylparaben 0.2 (11) perfume . \* \* Quantity (12) ion exchange water \* \* (4) is uniformly dissolved in \* \* (process) (12) (aqueous phase). On the other hand, (7) and (3) are dissolved in (1) and this is added to the aqueous phase. Subsequently, after adding (2) and (8) - (11) here, it is made to neutralize by (5) and (6), and thickens.

[0085]

(Embodiment 17) Essence (a part for \* \* \* \*) (mass %)

(A phase)

ethyl alcohol (95%) -- a 10.0 polyoxyethylene (20 mol) octyldodecanol 1.0 pantothenyl-ethyl-ether 0.1 Salix alba extract (methanol extraction.) Solid content 1.5 methylparaben 0.15 (B phase)

Potassium hydroxide 0.1 (C phase)

Glycerol 5.0 Dipropylene glycol 10.0 sodium-hydrogensulfite 0.03 carboxyvinyl polymer 0.2 ("Carbopol 940" B.F.Goodrich)

Purified water A residual (process) A phase and C phase are dissolved in homogeneity, respectively, and A phase is added and solubilized to C phase. Subsequently, a container is filled up after adding B phase.

[0086]

(Embodiment 18) Pack (a part for \* \* \* \*) (mass %)

(A phase)

Dipropylene glycol 5.0 Polyoxyethylene (60 mol) hydrogenated-castor-oil 5.0 (B phase) Guarana extract (methanol extraction.) Solid content 0.01 olive-oil 5.0 tocopherol acetate 0.2 ethylparaben 0.2 perfume 0.2 (C phase)

sodium hydrogensulfite [ ] -- 0.03 polyvinyl alcohol (the degree 90 of saponification, the degree of polymerization 2,000) -- 13.0 ethanol 7.0 purified water \* \* A \* \* (process) A phase, B phase, and C phase are dissolved in homogeneity, respectively, and B phase is added and solubilized to A phase. Subsequently, a container is filled up after adding this to C phase.

[0087]

(Embodiment 19) (mass %) Cake makeup (a part for \* \* \* \*)

(1) Talc 43.1 (2) kaolin . 15.0 (3) sericite 10.0 (4) zinc-white . 7.0 (5) titanium-dioxide 3.8 (6) Synthetic Ochre . 2.9 (7) black-iron-oxide 0.2 (8) squalane . 8.0 (9) isostearic acid 4.0 (10) monooleic acid POE sorbitan 3.0 (11) octanoic-acid isocetyl 2.0 (12) Smilax officinalis extract 1.0 (ethanol extract.) 1.50% of concentration

(13) Antiseptics \* \* Quantity (14) perfume \* \* Quantity (process) (1) The powder constituent of - (7) is enough mixed with a blender, and it fills up and molds into a container, after being easy to add the oily component of (8) - (11), (12), (13), and (14) to this and kneading them to it.

[0088]

(Embodiment 20) Emulsified type foundation (cream type)

(A part for \* \* \* \*) (mass %)

(Fine-particles part)

Titanium dioxide 10.3 sericite 5.4 kaolin 3.0 Synthetic Ochre 0.8 red-ocher 0.3 black-iron-oxide 0.2 (oil phase)

Decamethyl cyclopentasiloxane 11.5 liquid paraffin 4.5 polyoxyethylene denaturation

dimethylpolysiloxane 4.0 (aqueous phase)

Purified water 51.0 1,3-butanediol 4.5 Smilax aspera extract (ethanol extract.) Concentration 4.5% 1.5

Sorbitan sesquioleate 3.0 antiseptics \*\* Quantity Perfume After heating and stirring the optimum dose (process) aqueous phase, the fine-particles part which fully carried out preferential grinding is added, and homomixer treatment is carried out. After adding the oil phase which furthermore carried out heating mixing and carrying out homomixer treatment, perfume is added agitating and it cools to a room temperature.

[0089]Each cosmetic of the above-mentioned Embodiments 1-20 is excellent in a MMPs activity inhibition operation, and can prevent, prevent and improve aging of the skin effectively.

[0090]

[Effect of the Invention]As explained above, [ the MMPs activity inhibition agent of this invention ] Have the outstanding MMPs activity inhibition effect and decomposition of the matrix components outside skin cells (for example, elastin, laminin, proteoglycan, basement membrane components, collagen, etc.) which are deeply related to aging of the skin is prevented, The status of a youthful skin without a crease or sag which holds textiles, prevents, prevents and improves aging of the skin, and is elastic is maintainable.

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[Translation done.]